Xport

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The Gameboy Advance (GBA) already has its own power supply, processor, keypad and an LCD display. In addition, the system bus is made available externally. All this is ideal as the basis for your own embedded system.

In the October 2000 issue of *Elektor Electronics* we published an expansion for the Gameboy: a digital oscilloscope. With the arrival of the Xport, made by Charmed Labs, the development of an embedded system based on the GBA has become a lot easier.

The Xport is a complete development system. Apart from the expansion board, the necessary software is also supplied.

The hart of the circuit on the expansion board is an FPGA made by Xilinx. Depending on the version you'll get an FPGA with either 50 K or 150 K gates on the board. Using the free development software from Xilinx, you can program your own designs into the FPGA.

The board also has a 4 Mbyte flash memory. This memory stores the program for the GBA as well as the configuration for the FPGA. Since the FPGA loses its configuration when power is removed, it must reload the configuration every time that it is powered up. This takes place automatically thanks to a CPLD on the expansion board. Two version of the Xport come with an extra 16 Mbyte of SDRAM. This memory can be used by both the processor and the FPGA.

Communication with the outside world is well provided for, with 64 I/O signals on board, in addition to the programming and debug connector!

As mentioned earlier, the system consists not only of hardware. The PC software included is a C-compiler (GCC), complete with essential libraries, debugger and a programmer application.

On top of this, there is an operating system (eCos) and its bootloader. There are also various examples included (which should be in every good development kit), so you can start using the Xport soon after get your hands on it.

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